Pilot study of an electronic decision support system for SMI smokers

Overview May 2, 2011
Research Support

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Background
Prevalence of smoking

- 50-90% of people with severe mental illness (SMI) smoke
- 20% of general population smoke
- Smoking initiation rates are higher and quitting rates are lower in SMI
- Smoking causes diabetes, heart disease (hypertension, heart attack), vascular disease (stroke) and cancers

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Smoking and mental illness 1992
(Lasser et al, 2000)

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Death Rates per 100,000 for Smoking Related Illnesses

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Kaiser State Health Facts (2008)
Deaths from heart disease are greater in people with SMI

Mauer '06, Brown 2000
Health effects continued

- Smoking confers three times more risk for cardiovascular disease than obesity
- Quitting improves health and extends life
Unique aspects of SMI smokers

- Smoke more cigarettes (de Leon 02)
- Have higher dependence (Etter 04)
- Inhale more nicotine per puff (Tidey 05, Williams 05)
More unique aspects of SMI smokers

- **Biology**
  - Impaired reward circuitry (George ‘07)
  - Disproportionate reinforcing effect of nicotine on impaired cognition or mood (Barr ‘08; Spring ‘08)

- **Social/environmental**
  - Smoking is normative among peers and in treatment settings (Lawn ‘02; Morris ‘09)

- **Psychology**
  - Use of smoking to cope with stress and symptoms (Davis ‘10; Tidey ‘09)
  - Perception that relief from withdrawal is improvement in mental illness symptoms (Morris 2009)

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Cessation treatments improve cessation outcomes in SMI

6-12 wks group +/- NRT or bup

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But people with SMI aren’t interested in treatment

- Many people with SMI want to quit (Baker, 2007)
- Idiosyncratic events motivate cessation (Davis, 2010)
- Around 40% or more try each year, average 1-2 ineffective quit attempts past year (Ferron, In press; Lucksted, 2004)
- People with SMI not interested in tx (Morris, 2010)
Motivational Interventions improve interest in quitting and quit treatment

• Four studies of motivational interventions
  – improved intention to quit
  – quit appointment attendance (Steinberg et al, 2004; Cather 2010)

• But CMHCs find it difficult to deliver motivation counseling for smoking cessation
  – Staff time, training, funding
Computerized motivational tool

- Electronic decision support system (EDSS) for smoking cessation
- Designed to increase motivation and provide decision support in an easy to use, web-based program
Aims of Dartmouth smoking cessation EDSS

• Easy to use and understand
• Motivate users to quit smoking
• Motivate users to choose evidence-based cessation treatment
• Provide information on cessation treatment options and referral to treatment
• Welcoming to all racial and ethnic groups
Aims of EDSS

- **Motivate to quit**
  - Assess level of nicotine dependence
  - Explore personal impact of smoking
  - Educate about health effects of smoking
  - Engage consumers with personal testimonials

- **Motivate to choose EBP treatment**
  - Educate about treatment efficacy and side effects
  - Engage consumers with personal testimonials

- **Provide information on treatment options and referral**
Design of Web-based tool

• Based on usability testing with 85 SMI smokers and research of others (Rotondi, 2007)
• Added mouse tutorial and enlarged buttons
• Linear design – only 2 layers deep
• Simplified language - 5th grade level
• Text to Audio (for slow or poor readers)
Thresholds EDSS pilot study: 2 month outcomes

Proportion of participants who started cessation treatment

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What is motivational about the EDSS?

• Components of motivational interventions for smoking cessation in SMI
  – Information about consequences of smoking
  – Assessment and personalized feedback
    • Money spent on cigarettes
    • Personal pros and cons of smoking
    • CO monitor reading & interpretation

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CO monitor

- CO is one of the toxins in cigarette smoke
- Monitor provides reading that correlates with amount user smoked recently
- Provides personalized feedback → hypothesized to increase perception of personal health risk

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CO monitor

- All of the motivational interventions tested in SMI used CO monitor
- Results from studies of CO monitor in general population are mixed, but they used distal outcome of abstinence

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Problems with CO monitor

- Monitor not available to people who would use EDSS from home or library
- CMHCs and other treatment settings may not be willing or able to provide CO monitor
- Monitors are expensive
Other ways to personalize health risks?

• Health checklist with feedback
  – Shown to reduce problem drinking (Riper 2009)
  – Component of MI for SMI (Steinberg et al 2004)
  – Easy to incorporate and use
  – Free
Smoking cessation EDSS

With and without CO monitor
Specific Aims

• Randomized study to assess whether EDSS with CO monitor and health checklist feedback leads to higher rates of tx initiation that EDSS with health checklist alone
Intervention

• Compare 2 versions of computer EDSS
  – one with CO monitor and health checklist
  – one without CO monitor but with health checklist

• Tests impact of CO monitor component
Study group: Inclusion criteria

- 132 (120 at f/u) smokers with SMI in tx at Thresholds
- Age 18-70
- English speaking
- Physically able to use computer
- No desire to quit smoking is required

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Study Group: Exclusions

- Current use smoking cessation treatment (past month)
  - This group is already motivated and in tx
- Active substance dependence with use in past month
  - Screen with clinician/chart
  - Screen in baseline interview
    - 1 or more day/week for drug
    - 2 or more day/week of excessive use for alcohol
SUD exclusion

– Rationale:
  • Tobacco cessation associated with other substance abstinence
  • Research on timing of tobacco cessation treatment is mixed & inconclusive
  • Conclusion: Best time to offer smoking cessation treatment to member with substance use disorder is when member is engaged in treatment of alcohol/drug disorder.

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Study design

Baseline
- Consent
- Baseline Interview

EDSS Visit
- Use EDSS with CO monitor
- Use EDSS without CO monitor

2 month f/u
- Interview

6 month f/u
- Interview

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Measures

– Use of quit treatments
– Smoking characteristics
– Symptoms
– Cognition
### Table 2: Study timeline

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Cessation treatments
Cognitive Behavioral Therapy for smoking cessation

- Teaches skills to quit
- Helps maintain motivation to quit
- 10 sessions
- Expect members to go through twice
- Expect members to use medication (Chantix, bupropion or nicotine replacement) as well as group

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Medications to quit

• Chantix (varenicline) is a nicotinic receptor partial agonist – it reduces craving and withdrawal

• Bupropion (Zyban) is an dopaminergic antidepressant that also reduces craving and withdrawal discomfort

• Nicotine replacement therapy – patch lozenge, gum reduce withdrawal

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How much do meds help people quit?

Odds ratios for treatment effect over placebo in general population

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Discussion

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